

# What's New in the Patient Safety World

May 2015

## HAC's and the Weekend Effect

We've already done numerous columns showing that adverse patient events and mortality are higher for patients admitted on weekends, commonly referred to as "**the weekend effect**". We have also noted many studies demonstrating similar adverse occurrences in patients admitted at night so we sometimes lump weekend and night admission problems together as "**the after-hours effect**".

A new study has looked at data from a large administrative database over the period 2002 to 2010 to determine the association between hospital-acquired conditions (HAC's or "never events") and admission on weekends vs. weekdays ([Attenello 2015](#)). They found that the incidence of HAC's was 5.7% among patients admitted on weekends vs. 3.7% for those admitted on weekdays. Even after adjustment for a variety of patient, hospital, and severity cofactors they determined that weekend admission was associated with a 25% higher likelihood of developing at least one hospital-acquired condition.

Not surprisingly, the occurrence of a hospital-acquired condition was associated with a 76% higher hospital charge and an increased hospital length of stay (from a mean LOS of 4.53 days to 6.26 days). The authors recognize, however, that this LOS association does not necessarily imply causality and that it may be patients with longer LOS have more opportunity to develop a HAC.

Interestingly, patients with comorbid neurological conditions had a 35% increased likelihood of developing a hospital-acquired condition. This may be a reflection that patients with moderate to extreme loss of function were 34% to 157% more likely to incur a HAC (since loss of function is considerably more likely with many neurological conditions). It would be interesting to see how the HAC rates compared between hospitals with or without stroke center designation. We'd expect that those hospitals with coordinated stroke teams might have lower HAC rates. However, there is currently a widespread shortage of neurologists (and especially of neurologists available for night and weekend hospital call) that may be a contributory factor. On the other hand, delays in ancillary services (eg. CT, MRI, ultrasound) may impact patients with neurological conditions to a greater degree than other conditions.

The accompanying editorial ([Dharmarajan 2015](#)) discusses the difficulties of using data from large administrative databases to determine quality and safety outcomes, noting that estimates obtained from administrative data have never been convincingly validated

against medical record data for many of the patient safety indicators. They make an argument that, instead of focusing on strategies to improve weekend care, we must focus on improving care every day of the week and overall strategies to prevent such adverse events.

In our many previous columns on the weekend effect or after-hours effect we have pointed out how hospitals differ during these more vulnerable times. Our healthcare systems clearly do not deliver uniform care 24x7. Staffing patterns (both in terms of volume and experience) are the most obvious difference but there are many others as well. Many diagnostic tests are not as readily available during these times. Physician and consultant availability may be different and cross-coverage by physicians who lack detailed knowledge about individual patients is common. You also see more verbal orders, which of course are error-prone, at night and on weekends. And a difference in non-clinical staffing may be a root cause. Our December 15, 2009 Patient Safety Tip of the Week “[The Weekend Effect](#)” discussed how adding non-clinical administrative tasks to already overburdened nursing staff on weekends may be detrimental to patient care. Just do rounds on one of your med/surg floors or ICU’s on a weekend. You’ll see nurses answering phones all day long, causing interruptions in some attention-critical nursing activities. Calls from radiology and the lab that might go directly to physicians now go first to the nurse on the floor, who then has to try to track down the physician. They end up filing lab and radiology reports or faxing medication orders down to pharmacy, activities often done by clerical staff during daytime hours. Even in those facilities that have CPOE, nurses off-hours often end up entering those orders into the computer because the physicians are off-site and are phoning in verbal orders. You’ll also see nurses giving directions to the increased numbers of visitors typically seen on weekends. They even end up doing some housekeeping chores. All of these interruptions and distractions obviously interfere with nurses’ ability to attend to their clinically important tasks (see our Patient Safety Tips of the Week for August 25, 2009 “[Interruptions, Distractions, Inattention...Oops!](#)” and May 4, 2010 “[More on the Impact of Interruptions](#)”).

Perhaps the most significant contribution of the current study by Attenello and colleagues is the quantification of the financial impact of HAC’s related to weekend admission. Since hospitals now (theoretically) bear the brunt of the cost of HAC’s, perhaps they will see that better upfront investment of resources may save money in the long run, not to mention result in better patient outcomes.

The weekend effect is complex and involves both patient-related factors and quality of care factors. While we may not be able to do much about the patient-related factors, there remains much we can do about the quality of care factors.

**Some of our previous columns on the “weekend effect”:**

- February 26, 2008 “[Nightmares....The Hospital at Night](#)”
- December 15, 2009 “[The Weekend Effect](#)”

- July 20, 2010 “[More on the Weekend Effect/After-Hours Effect](#)”
- October 2008 “[Hospital at Night Project](#)”
- September 2009 “[After-Hours Surgery – Is There a Downside?](#)”
- December 21, 2010 “[More Bad News About Off-Hours Care](#)”
- June 2011 “[Another Study on Dangers of Weekend Admissions](#)”
- September 2011 “[Add COPD to Perilous Weekends](#)”
- August 2012 “[More on the Weekend Effect](#)”
- June 2013 “[Oh No! Not Fridays Too!](#)”
- November 2013 “[The Weekend Effect: Not One Simple Answer](#)”
- August 2014 “[The Weekend Effect in Pediatric Surgery](#)”
- October 2014 “[What Time of Day Do You Want Your Surgery?](#)”
- December 2014 “[Another Procedure to Avoid Late in the Day or on Weekends](#)”
- January 2015 “[Emergency Surgery Also Very Costly](#)”

## References:

Attenello FJ, Timothy Wen T, Cen SY, et al. Incidence of “never events” among weekend admissions versus weekday admissions to US hospitals: national analysis. *BMJ* 2015; 350: h1460 (Published 15 April 2015)  
<http://www.bmj.com/content/350/bmj.h1460>

Dharmarajan K, Kim N, Krumholz HM. Patients need safer hospitals, every day of the week. *BMJ* 2015; 350: h1826 (Published 15 April 2015)  
<http://www.bmj.com/content/350/bmj.h1826>

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